

ACCESSION NR: AP3001573

S/0191/63/000/006/0011/0012

AUTHOR: Dushin, Yu. A.

TITLE: Effective heat of decomposition of addition polymers

SOURCE: Plasticheskiye massy, no. 6, 1963, 11-12

TOPIC TAGS: effective heat of decomposition, addition polymers, heat resistance, heat of polymerization, hot inert gases, subsonic speed, supersonic speed, polymethylmethacrylate, polybutadiene, polytetrafluoroethylene

ABSTRACT: When plastics are used at temperatures appreciably exceeding the decomposition temperature, their heat resistance is characterized by the effective heat of decomposition which combines their ability to absorb flow of heat reaching the decomposing surface and the ability to lessen this flow by discharge of colder decomposition products. The calculation is shown and the material parameters required: molecular weight of decomposition products, heat of polymerization, and temperature of decomposition, are tabulated for five common addition polymers. Calculated and experimental values are compared for exposure to hot inert gas at subsonic and supersonic speeds of polymethylmethacrylate, polybutadiene, and polytetrafluoroethylene. Orig. art. has: 1 table and 1 figure.

Card 1/2

ACCESSION NR: AP3001573

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 01Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 002

OTHER: 000

Card 2/2

L 43181-65 ENG(1)/EWT(1)/EWP(6)/EWT(m)/EPP(c)/EWP(1)/EPP(n)-2/EWP(3)/EWP(5)/

... is considered as a ...
 ... and a chemically active ...
 ... in which the heat input from a developed laminar gas
 stream is assumed uniform and steady. The decomposition rate is taken to follow the
 ...
 ... for the mass rate of ...
 ...
 ...
 ... corresponding to ...
 and to $t_g > t_g$. Two illustrations ...

... gas. It is known that ...
... material one. For the ...
... for $t_L > t_g$, a porous lining ...
... and 1 figure.

... Institut g. Leningrad ...

... reco4

ENCL: 00

... 0015, TP

... 001

L 10265-67 EWP(e)/EWT(m) WW/WH
ACC NR: AP7003089

SOURCE CODE: UR/0363/66/002/007/1311/1314

DUSHIN, Yu. A., Leningrad Mechanical Institute (Leningradskiy mekhanicheskiy institut) 48

"Nonequilibrium Dissociation of Heat Insulating Materials in a Hot Gas Stream"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 2, No 7, 1966, pp 1311-1314

TOPIC TAGS: insulating material, ceramic coating

ABSTRACT: In machines with working gas at a high temperature, heat insulating tective materials can dissociate with the formation of volatile products. In order to prevent an abrupt change in working contours of the walls, compounds with minimal rate of dissociation (Al_2O_3 , EN , BeO , etc.) are used as ceramic coatings. In the organization of gaseous curtains at heat-charged sections, in contrast, readily dissociable compounds are used (NH_4Cl , $(NH_4)_2SO_4$, etc.).

For proper selection of material and thickness of the insulating layer, one must know the rate of dissociation. The widely disparate character of the events affecting dissociation rate gives rise to partial solutions to this problem: those not taking into account ablating effect of the stream, ignoring the reverse reaction, or, in contrast, regarding dissociation as equilibrated. Such a one-sided approach can lead to marked errors in thermal calculations.

In order to solve problem in its general form one can examine mass dissociation rate as a result of the direct and reverse reactions:

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UDC: 66.043.2

L 10265-67

ACC NR: AP7003089

$$v_p = \vec{v}_p - \vec{v}_p \quad (1)$$

From known kinetic considerations, the rate of the forward reaction is

$$\vec{v}_p = \phi \rho a_c \quad (2)$$

and the rate of the reverse reaction: $\vec{v}_p = \phi^* p_n^* a_c^*$ (3)

Here ϕ = frequency factor of dissociation; a_c = coefficient of dissociation in the form of the Arrhenius exponential - $\exp\left(-\frac{E}{RT_0}\right)$ - at the tem-

perature of the working surface of the material, T_0 ; ρ = density of material; p_n = nonequilibrium pressure of the dissociation products.

The values of ϕ^* and a_c^* as a rule are unknown and therefore, are determined by well-known parameters of the forward reaction and the equilibrium pressure of dissociation p_{eq}^* .

At equilibrium $\vec{v}_p = \vec{v}_p$, $p_n^* = p_{eq}^*$

So that
$$\phi^* a_c^* = \frac{\phi \rho a_c}{p_{eq}^*} \quad (4)$$

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From (1) - (4) it follows that

$$v_p = \phi_{pa_c} \left(1 - \frac{p_n^*}{p_{eq}^*} \right) \quad (5)$$

Orig. art. has: 1 figure and 12 formulas. [JPRS: 38,139]

SUB CODE: 11 / SUBM DATE: 31May65 / ORIG REF: 001 / OTH REF: 002

Card 3/3

ALESKOVSKIY, V. [Aleskovs'kyi, V.], doktor khim.nauk, prof. (Leningrad);
DUSHINA, A. [Dushyna, A.], aspirant (Leningrad)

Chemical elements out of sea water. Nauka i zhyttia 11
no.3:19-20 Mr '62. (MIRA 15:8)
(Sea water--Composition)

Communication I.

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 1, 1965, 47-51

1. Synthesis of aluminosilica gels, synthesis of a stable inorganic ion
of chemical stability

Aluminosilica gels with a high content of aluminum
obtained by coprecipitation of sodium silicate with aluminum nitrate from

aqueous solution. Washed with water, dried at 100°C, and then at 140°C.
The gels were characterized by their chemical composition, structure, and
physical properties. The gels were characterized by their chemical composition,
structure, and physical properties.

"APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411620004-3

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"APPROVED FOR RELEASE: 08/25/2000

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APPROVED FOR RELEASE: 08/25/2000

CIA-RDP86-00513R000411620004-3"

the Ca ions in the sorbent were completely exchanged for the Cu ions. Cu was subsequently desorbed with 1N HCl. However, the exchange capacity of the sorbent for Cu decreased as the concentration of Cu in the solution increased.

ALESKOVSKIY, V.B., prof.; BARDIN, V.V.; BOYCHINOVA, Ye.S.;
BULATOV, M.I.; VASIL'YEV, V.P.; DOBYCHIN, S.L.; DUSHINA,
A.P.; KALINKIN, I.P.; KEDRINSKIY, I.A.; LIBINA, R.I.;
PRIK, K.Ye.; SETKINA, O.N.; KHEYFETS, Z.I.; YATSIMIRSKIY
K.B., prof.; VASKEVICH, D.N., red.

[Physicochemical methods of analysis ; a laboratory manual]
Fiziko-khimicheskie metody analiza; prakticheskoe rukovod-
stvo. Moskva, Khimia, 1964. 451 p. (MIRA 17:12)

DUSHINA, A.P.; ALESKOVSKIY, V.B.

Chromatography of heavy metals on silica gel. Zhur.georg.khim.
8 no.9:2194-2197 S '63. (MIRA 16:10)

DUSHINA, Avgusta Petrovna; ALESKOVSKIY, Valentin Borisovich;
GRIVA, Z.I., red.; FOMKINA, T.A., tekhn. red.

[Silica gel, an inorganic cation exchanger] Silikagel' -
neorganicheskii kationit. Leningrad, Goskhimizdat,
1963. 89 p. (MIRA 17:1)
(Ion exchangers) (Silica)

KUZNETSOVA, G.N.; SMIRNOVA, M.F.; DUSHINA, A.P.; SHEVYAKOV, A.M.

Infrared spectroscopic study of the products of chemical reaction
between aluminum ions and polysilicic acid. Zhur. prikl. khim. 37
no.12:2746-2748 D '64. (MIRA 18:3)

SMIRNOVA, N.F.; DUSHINA, A.F.; ALESKOVSKIY, V.B.

Synthesis and chemical properties of artificial aluminosilica gels. Zhur. prikl. khim. 38 no.1:47-51 Ja '66.

Sorption capacity of artificial aluminosilica gels. Ibid.:51-54
(MIRA 18:3)

1. Leningradskiy tekhnologicheskii institut imeni Lomonosova.

DORONENKOV, I.M., kand. tekhn. nauk; DUSHINA, E.M., inzh.; FISKINA, R.Ya.,
inzh.

Anticorrosion polymer solution on the basis of furyl resins and
mineral fillers. Stroi. mat. 11 no.8:23 Ag '65. (MIRA 18:9)

DUSHINA, O.P.

Simplified method for the isolation of Brucella hemocultures. Lab.
delo 6 no.5:5-6 8-0 '60. (MIRA 13:9)

1. Otdel osobo opasnykh infektsiy Checheno-Ingushskoy respublikanskoy
sanitarno-epidemiologicheskoy stantsii.
(BRUCELLA) (BACTERIOLOGY—CULTURES AND CULTURE MEDIA)

DUSHINA, O.P.; MITROFANOVA, L.I.; CHUDENTSOVA, Ye.N.; SAVCHENKO, N.T.

Case of isolation of atypical Brucella from murine rodents in the
Chechen - Ingush Autonomous Republic. Zhur. mikrobiol., epid. i
immun. 41 no.3:143-144 Mr. '64. (MIRA 17:11)

1. Checheno-Ingushskaya respublikanskaya sanitarno-epidemiologicheskaya
stantsiya.

^D
O.V. BUSHINA

"Development of a Method for Manufacturing a Lanthanum
Boride Cathode and the Sheath of a Tungsten-Barium Cathode by the Hot Pressing
Method" from Annotations of Works Completed in 1955 at the State Union Sci. Res.
Inst; Min. of Radio Engineering Ind.

So: B-3,080,964

5(2)
AUTHORS: Blyum, I. A., Dushina, T. K. SOV/32-25-2-4/78
TITLE: A New Fluorometric Method for the Determination of Indium
(Novyy fluorometricheskiy metod opredeleniya indiya)
PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 2, pp 137-139 (USSR)
ABSTRACT: N. S. Poluektov and others (Ref 1) showed that the anion
 InBr_4^- forms a colored compound with rhodamine S which can
be extracted by means of a benzene-acetone mixture. In the
present case 14 coloring agents of the arylmethane series
were investigated in connection with the colorimetric and
fluorometric determination of indium. Rhodamine ZV and
victoria blue B possess favourable properties in this connec-
tion. The compounds of the InBr_4^- -ion with the cations of
these coloring agents can be extracted by benzene and cause
the latter to become reddish or blue. In the case of rhod-
amine ZV the indium content of the benzene layer can be
determined from the intensity of luminescence. The solution
containing indium should contain 2.5 n of hydrobromic acid.
In the transmission range of the green filter of the photo-
colorimeter FEK-M the solution containing the

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A New Fluorometric Method for the Determination
of Indium

SOV/32-25-2-4/78

indium-rhodamine ZV compound possesses a molar coefficient of 20,000. If an ultraviolet lamp SVDSH-250-3 is used 0.02 μ In can be visually observed in 5 ml. The delicacy of the reaction In-victoria blue B is somewhat smaller. The disturbing effect of some elements (Ag, Au, Tl, As^V, Se, Te, Fe^{III}, Cr^{VI}, Sb^V, V^V) can be eliminated by preliminary treatment with iron solution reduced by hydrogen. The analysis course described was verified by means of artificial mixtures (Table 1) and ore samples (Table 2). The method of analysis is being used successfully in some laboratories in the Urals. There are 2 tables and 1 Soviet reference.

ASSOCIATION: Tsentral'naya rudnaya laboratoriya Chelyabinskogo geologicheskogo tresta (Central Ore Laboratory of the Chelyabinsk Geological Trust)

Card 2/2

BLYUM, I.A.; DUSHINA, T.K.; SEMENOVA, T.V.; SHCHERBA, I.Ya

Determination of boron with crystal violet. Zav.lab. 27
no.6:644-650 '61. (MIRA 14:6)

1. Kazakhskiy institut mineral'nogo syr'ya, TSentral'naya
laboratoriya Chelyabinskogo geologicheskogo tresta i TSentral'naya
laboratoriya Yuzhno-Kazakhstanskogo geologicheskogo upravleniya.
(Boron--Analysis) (Crystal violet)

S/032/62/028/008/001/014
B142/B101

AUTHORS: Blyum, I. A., and Dushina, T. K.

TITLE: Rhenium determination by butyl rhodamine B in ores

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 8, 1962, 903-906

TEXT: Studies of reactions between rhenium and rhodamine dyes showed that the Re VII - butyl rhodamine compound is suited for the quantitative analysis of Re. To eliminate the disturbing effect of Hg, W, Mo, NO_3^- and halides the sample is annealed with MgO for two hours at $650-700^\circ\text{C}$ in an oxidizing atmosphere, boiled with water, and filtered. The filtrate is mixed with phosphoric or sulfuric acid and 1 ml of a 0.1% dye solution, then extracted with 10 ml benzene. The optical density of the extract is colorimetrically determined and depends on the acid concentration. Extraction from a 5 N H_2SO_4 or 3 M H_3PO_4 solution is suited best. The extraction degrees of H_2SO_4 and H_3PO_4 are 70% and 96%, respectively. During the analysis of sulfidic ores the optical density increases owing to the SO_4^{2-} content. With a weighed portion of 2g substance containing Card 1/2

Rhenium determination by ...

S/032/62/028/008/001/014
B142/B101

50% S the optical density of the blank test increases by a value equivalent to 0.25-0.3 μg Re. The method has therefore a sensitivity of 0.0002%. There are 3 figures and 2 tables.

ASSOCIATION: Kazakhskiy institut mineral'nogo syr'ya (Kazakh Institute of Mineral Raw Materials). Tsentral'naya laboratoriya Chelyabinskogo geologorazvedochnogo tresta (Central Laboratory of the Chelyabinsk Trust of Geological Exploration)

Card 2/2

YANUSHEVICH, Z.V.; DUSHINKEVICH, I.Ye.

Study of the sterility phenomenon in potatoes. Izv. AN Mold.
SSR no.12:66-79 '62. (MIRA 18:4)

DUSHINSKIY, B. K., Cand Tech Sci -- (diss) "Research into the process of transportation of multi-bearing rain outfit and of medium jet equipment and the glaze therein." Moscow, 1960. 18 pp; (Ministry of Agriculture USSR, All-Union Order of Lenin Agricultural Sciences Academy im V. I. Lenin, All-Union Scientific Research Inst of Hydrotechnics and Land Reclamation im A. N. Kostyankov); 130 copies; price not given; (KL, 22-60, 136)

ACC NR: AP6025642

(N)

SOURCE CODE: UR/0413/66/000/013/0094/0094

INVENTOR: Dushits-Kogan, G. D.; Levinson, M. M.; Baranov, A. P.; Bol'shakov, D. F.; Fokin, B. P.

ORG: None

TITLE: Instrumentation for operating conditions of a gas turbine engine with a free turbine. Class 42, No. 183445

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 94

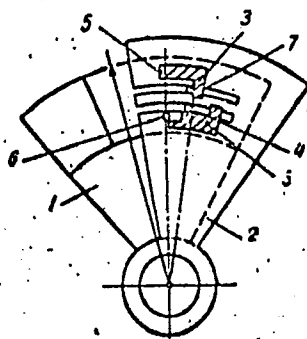
TOPIC TAGS: gas turbine engine, test instrumentation

ABSTRACT: This Author's Certificate introduces instrumentation for operating conditions of a gas turbine engine with a free turbine. The unit contains tachometers, pressure and temperature pickups at the intake, a computer and meter. Operating conditions in the engine are determined by combining the computer and the meter. The combined unit is made in the form of two disc sectors with pins and guide cams. One of the sectors indicates cruising conditions while the other indicates nominal engine conditions.

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UDC: 531.781:621.433

ACC NR: AP6025643



1 and 2--disc sectors;
3-6--pins; 7 and 8--
guide cams

SUB CODE: 13, 21/ SUBM DATE: 16May63

Card 2/2

DUSHKA, V.G.

KUDRYAVTSEV, P.S. (G. Tambov) TSALIKHIN, L.M. (G. Serpukhov) DUSHKA, V.G.

Discussion of professor N.M. Malov's article. Fiz.v shkole 15
no.3:39-42 My-Je '55. (MIRA 8:6)

1. 25-ya srednyaya shkola (for Tsalikhin) 2. Srednyaya shkola,
Stalinskaya oblast', stantsiya Ignat'yevskaya (for Dushka).
(Malov, N.M.) (Physics--Terminology)

AUTHOR: Dushkevich, A.A., Member of the Commission for Gas Turbines SOV/25-59-1-9/51
of the USSR Academy of Sciences

TITLE: Gas Turbines in Cars (Gazovaya turbina na avtomobile)

PERIODICAL: Nauka i zhizn', 1959, Nr 1, p 15 (USSR)

ABSTRACT: The article deals with the possibilities of using gas turbine engines for cars. This gas turbine engine would consist of two units: a generator of gas having a turbine compressor, and a traction turbine with transmission. The first test samples have already been produced. This, however, does not mean that serial production will be started soon. Research is to be carried on into this problem. There is one photo.

ASSOCIATION: Akademiya nauk SSSR (Academy of Sciences of the USSR)

Card 1/1

DUSHKEVICH, A.K.

Virulence for laboratory animals of tuberculous mycobacteria resistant to hydrazide of isonicotinic acid and its derivatives. Zdrav. Belor. 5 no.10:54-57 0 '59. (MIRA 13:2)

1. Iz kafedry mikrobiologii (zaveduyushchiy - zasluzhennyy deyatel' nauki prof. B.Ya. El'bert) Minskogo meditsinskogo instituta.
(LABORATORY ANIMALS) (MYCOBACTERIUM TUBERCULOSIS)
(ISONICOTINIC ACID)

DUSHKEVICH, A.K.

Study of resistance to antibacterial preparations by Mycobacterium tuberculosis from pulmonary tuberculosis patients.
Zdrav.Belor. 5 no.6:36-39 Ja '59. (MIRA 12:9)

1. Kafedra mikrobiologii (zaveduyushchiy - prof.B.Ya.El'bert)
Minskogo meditsinskogo instituta.
(BACTERIA, EFFECT OF DRUGS ON) (TUBERCULOSIS--BACTERIOLOGY)

DUSHKEVICH, A.K.

Growth of cultures of Mycobacterium tuberculosis in dense nutrient media. Zdrav. Bel. 7 no. 4:57-58 Ap '61. (MIRA 14:4)

1. Kafedra mikrobiologii (zaveduyushchiy - professor B.Ya. El'bert) Minskogo meditsinskogo instituta.
(BACTERIOLOGY--CULTURES AND CULTURE MEDIA)
(MYCOBACTERIUM TUBERCULOSIS)

DUSHKEVICH, A.K., kand.med.nauk

Effect of adrenocorticotrophic hormone on the development
of postvaccinal immunity to tuberculosis. Probl. tub. 41.
no.3:53-58'63. (MIRA 16:9)

1. Iz bakteriologicheskogo otdeleniya Belorusskogo nauchno-
issledovatel'skogo instituta tuberkuleza (dir. - kand.med.
nauk M.N.Lomako).
(ACTH) (BCG VACCINATION) (IMMUNITY)

DUSHKEVICH, A.; KOSOV, M.

"TurboNAMI-053," a Soviet-built gas-turbine motorbus. Za rul. 18
no.4:8-9 Ap '60. (MIRA 13:8)

1. Nauchnyy rukovoditel' i glavnyy konstruktor rabot Nauchno-issledovatel'skogo avtomobil'nogo i avtomotornogo instituta po gazoturbinnym avtomobilyam (for Dushkevich). 2. Glavnyy konstruktor avtomobil'nogo gazoturbinnogo dvigatelya "TurboNAMI-053" (for Kossov).
(Motorbuses)

BALANDIN, B.A.; DUSHKEVICH, M.K.; LIPSHITS, S.G.; MAYSURADZE, V.F.;
KABAL'CHICH, O.A., retsenzent; SERGEYEV, V.I., retsenzent;
IZAKSON, G.M., red.; USENKO, L.A., tekhn. red.

[Moscow - the Caucasus; railroad guide] Moskva - Kavkaz; zhe-
leznodorozhnyi putevoditel'. Moskva, Transzheldorizdat, 1962.
185 p. (MIRA 15:12)

(Railroads—Guides)

AKSENTOV, Yu.V.; GOL'DIN, A.A.; DZHAKONIYA, V.Ye.; DUSHKEVICH, N.I.;
YERGANZHIYEV, N.A.; YEFIMKIN, V.I.; LIPAY, I.N.; MINENKO, Yu.G.;
ODNOL'KO, V.V.; PEREVEZENTSEV, L.T.; TARANETS, D.A.; SHMAKOV,
P.V., prof.; KUKOLEVA, T.V., red.; BELYAYEVA, V.V., tekhn. red.

[Theory and practice of color television]Teoriia i praktika
tsvetnogo televideniia. Moskva, Sovetskoe radio, 1962. 661 p.
(MIRA 16:1)

(Color television)

DUSHKIN, Aleksey Nikolayevich

"New 'Zavod imeni I. V. Stalin' Station of the Moscow Subway," Arkhitektura SSSR [Architecture of the USSR], 1943, No. 3

SO: Bol'shaya Sovetskaya Entsiklopediya, 2nd edition, Vol XV, Moscow, 1949

^N
DUSHEVNIK, A. and ^Y
N. VASIL'EV.

Proektirovaniye i stroitel'stvo novykh vokzalov. (Projecting and building new railroad stations). (Zhel-dor. transport, 1947, no. 7, p. 22-31, illus. of Novgorod, Dnepropetrovsk and Khar'kov railroad stations). DLC: HE7.Z5

SO: Soviet Transportation and Communications, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

DUSHKIN, Alexsey Nikolayevich

"Multistoried Building at the Red Gate," Arkhitektura i Stroitel'stvo
[Architecture and Construction], 1949, No 6

SO: Bol'shaya Sovetskaya Entsiklopediya, 2nd, edition, Vol XV, Moscow, 1949

L 18030-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6002401

SOURCE CODE: UR/0103/65/026/012/2182/2193

AUTHOR: Dushkin, B. M. (Moscow)

ORG: none

TITLE: The automaton cycling transformation in sequential machines

SOURCE: Avtomatika i telemekhanika, v. 26, no. 12, 1965, 2182-2193

TOPIC TAGS: automatic control theory, automaton, finite automaton

ABSTRACT: The author investigates imaging during cycling transformations by means of automata. From a given machine S and clock-automaton A an image-making machine G is designed. The machine operation is described by means of tapes. The formulation of the problem is followed by explanations, the establishment of the image-making machine, the establishment of clock-automata, and a set of proofs organized in two appendixes. The author also establishes the clock-automaton from the given machines S and G in such a way that the process represents imaging. Questions of reproducibility are also discussed. Orig. art. has: 6 formulas and 2 figures.

Card 1/2

UDC: 62-507

L 18030-66

ACC NR: AP6002401

SUB CODE: 09 / SUBM DATE: 08Apr65 / ORIG REF: 002

Card 2/2

vmb

DUSHKIN, F.

Preparing and conducting the practical training of machine operators. Prof.-tekh. obr. 22 no.10:34-35 0 '65.

(MIRA 18:10)

1. Zamestitel' direktora po uchabno-proizvodstvennoy rabote georgiyevskogo sel'skogo professional'no-tekhnicheskogo uchilishcha No.5, Stavropol'skiy kray.

BLAGONRAVOV, A.A., akademik, red.; GRIGOR'YAN, A.T., doktor fiz.-mat. nauk, red.; DUSHKIN, L.S., doktor tekhn. nauk, red.; KOSMODEM'YANSKIY, A.A., doktor fiz.-mat. nauk, red.; KOZLOV, S.G., prof., red.[deceased]; SOKOLOVA, S.A., kandd. tekhn. nauk, red.; SOKOL'SKIY, V.N., kand. tekhn.nauk, red.; FEDOROV, A.S., kand. tekhn. nauk, red.; CHEKANOV, A.A., kand. tekhn. nauk, red.; SHUKHARDIN, S.V., kand. tekhn. nauk, red.

[From the history of rocket engineering] Iz istorii raketnoi tekhniki. Moskva, Nauka, 1964. 254 p. (MIRA 17:8)

1. Akademiya nauk SSSR. Institut istorii yestestvoznaniya i tekhniki.

3(7)

SOV/50-59-6-2/17

AUTHORS:

Dushkin, P. K., Lomonosov, Ye. G., Tatarskaya, M. S.

TITLE:

Forecast of the Formation of Cyclones and Anticyclones by Means of a Computer (Prognoz tsiklo- i antitsiklogeneza s pomoshch'yu vychislitel'noy mashiny)

PERIODICAL: Meteorologiya i gidrologiya, 1959, Nr 6, pp 11 - 16 (USSR)

ABSTRACT:

The following may be seen from the data available: in a number of cases the barotropic forecasts for one day of the baric field on the mean level prove to be true in most cases. The coefficients for the correlation between the forecast and the actual meteorological tendencies of one day attain the values of from 0.8 - 0.9. From case to case, however, a rather considerable variability of the correlation coefficient is observed. Therefore the observers were obliged to operate with forecasting schemes which take into account the three-dimensional atmospheric structure. More accurate solutions of the equations of the hydrothermodynamics of the atmosphere were obtained in the USSR. On this basis it was possible to work out a number of forecasting models (Refs 1,2,3). The numerical forecast of the baric field is in this case on several levels

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Forecast of the Formation of Cyclones and Anticyclones SOV/50-59-6-2/17
by Means of a Computer

based upon the integral-solution by N. I. Buleyev and G. I. Marchuk: formula (2). This solution of (2) is - applied to the daily forecast of the charts of the absolute baric topography of 850, 500 and 300 mb - to be approximated by sums. In this connection the integration is to be carried out along the vertical line η by means of the suspended band method and in the horizontal plane r, φ according to rings: formula (3). The method used for the solution of this task is shown here. Forecasting the baric field according to this method takes approximately one hour with the computer "Strela". The analysis of the series of numerical baroclinic forecasts shows that they are - with respect to quality - better than the barotropic forecasts on the corresponding level. The taking into account of the three-dimensional baroclinic atmospheric structure in the model with three levels permitted the elimination of the most striking disadvantages of two-dimensional forecasts. The shifting of the baric formations is far more accurately forecast according to the new scheme. The investigation of the series of numerical forecasts according to the

Card 2/3

Forecast of the Formation of Cyclones and Anticyclones SOV/50-59-6-2/17
by Means of a Computer

scheme of formula (3) shows that this scheme gives as a rule the possibility of forecasting the formation of cyclones and anticyclones. Table 1 gives the results of several forecasts for one day of the charts of absolute baric topography of 850, 500 and 300 mb according to observation data obtained at 03 o'clock. The formation of cyclones and anticyclones was observed in the seven cases mentioned. All new formations were well calculated. The individual examples are demonstrated. Summarizingly it is stated that the use of the baroclinic scheme of forecasting with a higher number of levels permits - even within the framework of the usual physical approximations - the more accurate advance-calculation of the formation of cyclones and anticyclones in the free atmosphere. I. A. Kibel' assisted the authors with his advice in working at the forecast scheme with a higher number of levels. There are 4 figures, 1 table, and 4 references, 3 of which are Soviet.

Card 3/3

67171

3(7) 3.5000

AUTHORS: Dushkin, P. K., Lomonosov, Ye. G.

SOV/50-60-1-2/20

TITLE: On the Vertical Currents in the Troposphere ✓

PERIODICAL: Meteorologiya i gidrologiya, 1960, Nr 1, pp 3-9 (USSR)

ABSTRACT: Vertical motions of air masses can be only determined in the mathematical way. A system of equations with a quasigeostrophic, static, and adiabatic approximation can be made use of. Both the

vertical velocity $\tau = \frac{dp}{dt}$ in the standard coordinate system

x, y, p, t , and its analog w in the stationary coordinate system x, y, z, t , appear then to be functions of the field of isobar level heights. It is sufficient for diagnostic and prognostic calculations of $\tau(w)$ to know the field z . Here, the calculation of τ was made by utilizing the prognostic model with 3 levels of baric topographic maps for the isobaric planes of 850, 500, and 300 mb (Ref 3). To calculate the vertical currents, equation (1) was used for the heat indraft under consideration of the mentioned approximations. The first summand of formula (1) denotes the contribution brought about by thermal advection, the second summand denotes the contribution brought about by

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On the Vertical Currents in the Troposphere

SOV/50-60-1-2/20

temperature change. Both summands are approximated in the working formulas, with the fields z and q being calculated according to the three-level model (established on the strength of the solution by N. I. Buleyev and G. I. Marchuk (Ref 2)).

$q = \frac{dz}{dt}$ is the tendency of the isobar level height. The vertical currents caused by the friction τ_{friction} are calculated on the strength of a scheme based on the solution by I. A. Kibel' (Ref 5): formula (2). It follows therefrom that in the cyclonic regions $\tau_{\text{friction}} < 0$ holds since $\Delta z > 0$. A downdraught is observed in the anticyclonic regions. The working formulas (3) for the calculation of vertical currents at a certain point are written down on the levels I - III. The first summand describes the vertical currents caused by the thermal advection $\tau_{\text{advection}}$, the second summand the ones caused by the local temperature change (nonstationary state) τ_q , and the third summand the vertical currents caused by the turbulent friction τ_{friction} . τ is determined from (3) and the formulas serving for the calculation of the vertical velocity w are set up

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On the Vertical Currents in the Troposphere

SOV/50-60-1-2/20

(by using $\tau = \frac{Pg}{RT}(q-w)$, where g denotes the gravitational constant). Formulas (3) can be prognostic or diagnostic, depending on which z -field is utilized for the calculation. The vertical currents obtained here by the aid of a calculating machine for the regular point network of the points of Western Europe and of the European part of the USSR are analyzed. Calculations are shown to confirm the existence of a so-called "mean level" with $\frac{d\tau}{dp} = 0$ in the atmosphere. The investigation of the systematic errors of many out of a hundred of numerical barotropic prognoses of AT_{700} maps revealed that the errors change their sign on the transition from one season to another. An investigation is made here of the structure of vertical currents according to altitude, and the influence of individual physical factors on the magnitude of the vertical currents is estimated. On the strength of examples the authors show a relationship of practical importance between the fields of vertical motions on the one hand, and the cloudiness and precipitations on the other. The method shown here for the prognosis of vertical currents in 3 levels of the troposphere


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On the Vertical Currents in the Troposphere

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SOV/50-60-1-2/20

makes it possible to compute a vertical velocity field which is in good agreement with the cloudiness- and precipitation fields. On the strength of an analysis made of the vertical current fields at different levels of the troposphere and a statistical interpretation of the vertical velocities, mean characteristics were obtained here. Papers by A. F. Dyubyuk (Ref 4), N. V. Lebedeva (Ref 6), and N. I. Buleyev (Ref 1) are mentioned. There are 2 figures, 1 table, and 6 Soviet references.



Card 4/4

9.7800
3.5000
6.1130

86643

S/050/60/000/012/001/005
B012/B054

AUTHORS: Dushkin, P. K., Lomonosov, Ye. G., Lunin, Yu. N.

TITLE: Experience Made With the Numerical Forecast of Humidity,
Cloudiness, and Precipitations With the Aid of a Computer

PERIODICAL: Meteorologiya i gidrologiya, 1960, No. 12, pp. 3 - 10

TEXT: The present paper describes the first experience made with the forecasting of cloudiness and precipitations on the basis of predeterminations of pressure fields, vertical currents, and humidity. Pressure was forecast by a numerical scheme with three levels set up according to the solution found by N. I. Buleyev and G. I. Marchuk (Ref.1). The equations for the heat supply are used in adiabatic approximation to calculate orientated vertical currents τ . The method of forecasting is explained in Ref.3. In humidity forecasts, the vertical currents must be interpolated for the 850, 700, and 500 mb levels by means of the interpolation polynomial of the 4th order. When determining the polynomial coefficients, the boundary conditions for τ at sea-level altitude and on the upper atmospheric boundary are used additionally. When calculating the dew-point

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Experience Made With the Numerical Forecast of S/050/60/000/012/001/005
Humidity, Cloudiness, and Precipitations With B012/B054
the Aid of a Computer

deficiency δ , the authors proceeded from the equation for the diffusion of specific humidity, and derived equation (6) which was first obtained

f.

by M. Ye. Shvets:
$$\frac{d_h \delta}{dt} = \left[\frac{\kappa - 1}{\kappa} T - \frac{(b + t_d)^2}{ab M} \right] \frac{\tau}{p} - \tau \frac{\partial \delta}{\partial p}$$

A statistical investigation was carried out to estimate the summands in the right-hand part of this equation. On the basis of this investigation, the final formula was obtained for calculating δ on the 850, 700, and

500 mb levels:
$$\left(\frac{\partial \delta}{\partial t} \right)_k = A (\delta, z)_k + \frac{\alpha_k}{p} \tau$$

t_d is the dew point, z the altitude of the isobaric surface, (δ, z) the finite-difference expression of the Jacobian with a "differentiation step" of 600 km. The predetermination of δ is the component and final part of the forecast of pressure fields and vertical currents. The vertical currents are determined on the levels mentioned according to the

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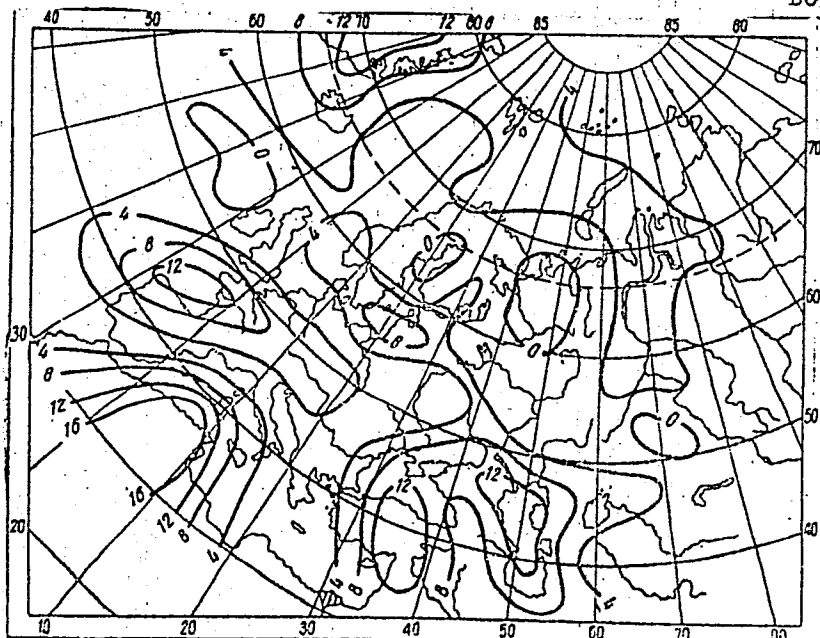
Experience Made With the Numerical Forecast of Humidity, Cloudiness, and Precipitations With the Aid of a Computer S/050/60/000/012/001/005 B012/B054

pressure field calculated and the geopotential tendencies during each Δt . The resulting forecast of the meteorological elements mentioned is made on the ETsVM [electronic digital computer] M-20 (M-20) within 30 minutes. Nine daily forecasts of the dew-point deficiency on the 850, 700, and 500 mb levels during the cold half-year have been calculated up to date. Figs. 1 and 2 show examples of such forecasts. The authors describe the plotting of nomograms on 850 and 700 mb levels for cloudiness and precipitation forecasts (Fig.3). An analysis of forecasts of all weather processes showed a probability of 80%. There are 3 figures, 2 tables, and 6 references: 4 Soviet.

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S/050/60/000/012/001/005
B012/B054



Legend to Fig.1:
Actual dew-point deficiency field on the 850 mb
level at 03 hours on
February 11, 1960

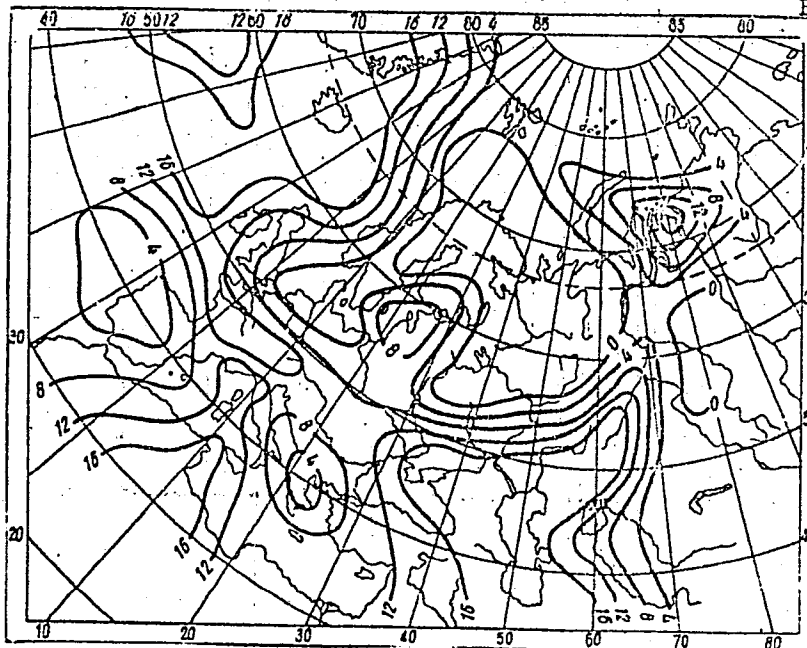
Fig.1

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B012/B054

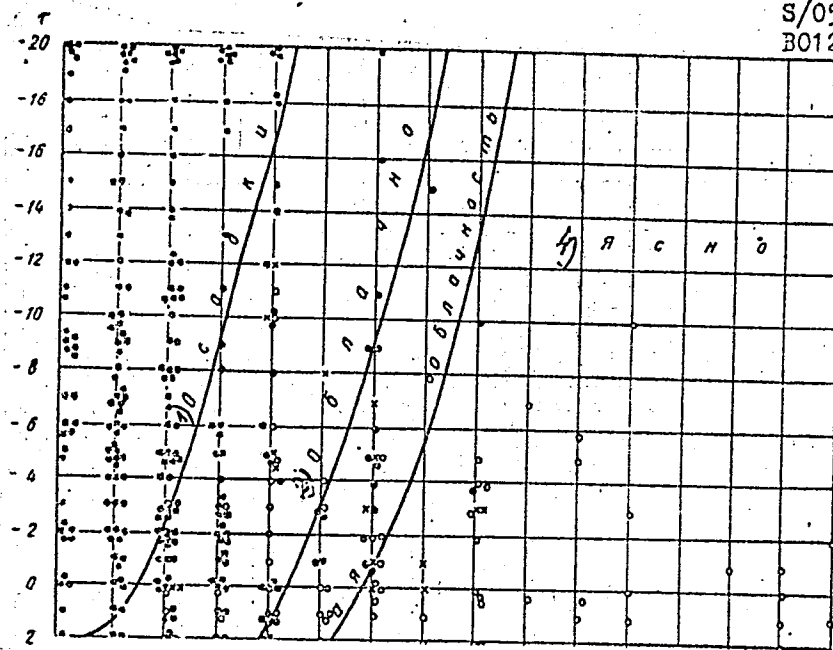


Legend to Fig.2:
Forecast dew-point defi-
ciency field on the
850 mb level at
03 hours on February 11,
1960

Fig.2

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Fig.3
(cont'd on card 8/8)

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B012/B054

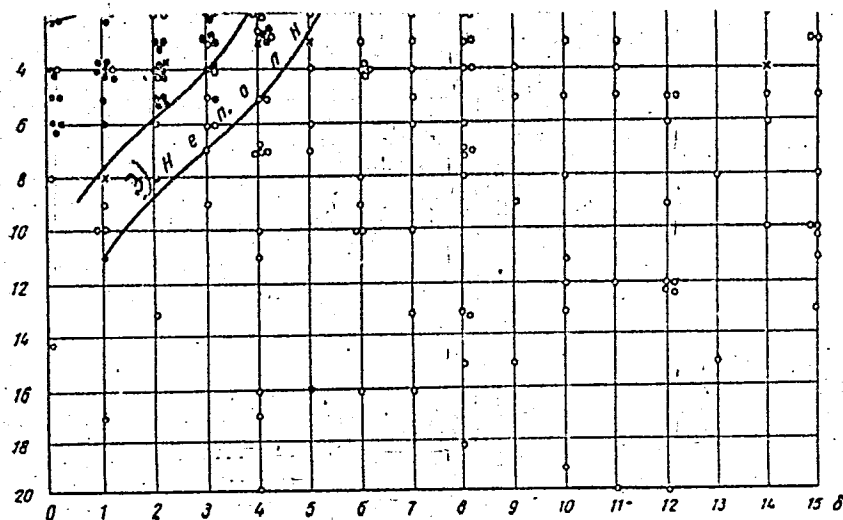
Fig.3

Legend to Fig.3: Nomogram for determining the weather processes on the 850 mb level: 1) precipitations, 2) cloudy, 3) incomplete cloudiness, 4) clear. T is air temperature, M is the module for the transition from decadic to natural logarithms (belongs to formula (6)).

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Continuation
of Fig. 3
(from Card 6/8)

Card 8/8

S/169/61/000/011/049/065
D228/D304

3,5000

AUTHORS: Dushkin, P.K., and Lomonosov, Ye.G.

TITLE: Results of forecasts of the baric field at three levels by means of a calculating machine

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1961, 40, abstract 11B280 (Tr. Tsentr. in-ta prognozov, no. 106, 1960, 20 - 31)

TEXT: A numerical scheme developed by the authors for forecasting the baric field at three levels (300, 500, and 850 mb.) is described. It is based on the known solution of the baroclinic problem of forecasting given by N.I. Buleyev, and G.I. Marchuk. The main factors permitting the derivation of a stable numerical solution to the problem are discussed (the due selection of differentiation spaces, the presentation of derivatives as final differences, the approximation of integrals as final sums, etc.). The results of fifteen trial forecasts computed on the "Strela" machine are cited. The analysis of these forecasts testifies to the definitely practical

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Results of forecasts of the ...

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D228/D304

cal value of the scheme under consideration. Thus, in a number of cases this scheme enables the intense reconstruction of the baric field to be successfully precalculated. A forecast according to the barotropic scheme was also given for several cases. The baroclinic scheme gave substantially better results in all cases. The main defects of the forecasts are the errors related to the use of fictitious boundary conditions at the edges of the region. The results of the solution of the prognostic problem for the atmosphere derived by Ye.G. Lomonosov and considered as a medium which consists of two layers (the troposphere and stratosphere) differing in the magnitude of the parameter of static stability - are also discussed in the work. The main differences between this solution and the one with the constant stability parameter are elucidated. The solution for the two-layer medium (in comparison with the one-layer solution) indicates the wider horizontal spreading of the influences of eddy advection in the stratosphere. This circumstance is connected with the fact that the stratosphere is characterized by more stable stratification. [Abstractor's notes: Complete translation].

Card 2/2

44592

S/169/62/000/012/053/095
D228/D307

3.5/10

AUTHORS: Bel'skaya, N.N. and Dushkin, P.K.

TITLE: Numerical method of forecasting the upper pressure field

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 12, 1962, 52, abstract 123338 (in collection: Materialy Soveshchaniya Koordinats. komis. po chisl. metodam prognoza, L., Gidrometeoizdat, 1961, 25-35)

TEXT: The effectiveness of pressure field forecasts for the 850-, 500-, and 300-mb levels, carried out under operative conditions by synoptic and numerical methods, is compared. The numerical methods were based on the known Buleyev-Marchuk model. When approximating the differential and finite-difference correlations, the time step was taken as being equal to one hour; the mean distance between nodes of the regular grid of points was 300 km. After each step smoothing was made according to the formula:

$$z' = 0.904z_0 + 0.004\bar{z}_{300} + 0.002\bar{z}_{470}$$
 (here z_0 is the value of the Card 1/2

Numerical method ...

S/169/62/000/012/053/095
D228/D307

height of an isobaric surface at a given point, \bar{z}_{300} and \bar{z}_{470} being the values averaged with respect to circles with radii of 300 and 470 km respectively). In 45-day material (April-May 1960) for European territory the relative error of daily forecasts of the 500-mb surface comprised 0.85 (synoptic method) and 0.70 (numerical method). For the 500-mb surface the corresponding figures were 0.89 and 0.63. Similar data are cited for estimates of the effectiveness of geostrophic wind forecasts. The contributory role of absolute vortex and temperature advection in prognostic geopotential changes is estimated in examples of calculations for individual days (the role of temperature advection diminishes with increasing height).

[Abstracter's note: Complete translation]

Card 2/2

DUSHKIN, P.K.

"Numerical prognostics of pressure fields, vertical currents, humidity and condensation zones with electronic calculators."

Report submitted to the Intl. Symposium on Numerical Weather Prediction
Oslo, Norway 11-16 March 1963

ACCESSION NR: AR4034738

8/0124/84/000/003/B116/B117

SOURCE: Ref. zh. Mekhan., Abs. 38713

AUTHOR: Dushkin, P. K., Lomonosov, Ye. G.

TITLE: On clarification of the solution of the problem of 24-hour prognosis of a baric field in a barocline atmosphere

CITED SOURCE: Tr. Vses. nauchn. meteorol. soveshchaniya. T. 2. L., Gidrometeoizdat, 1963, 21-26

TOPIC TAGS: meteorology, dynamic meteorology, weather prognosis, hydrodynamic prognosis, weather forecasting

TRANSLATION: A comparison is made of the quality of hydrodynamic short-term prognosis of weather with the use of schemes based on:

- 1) the Buleyev-Marchuk integral formula, which is the solution of a suitable elliptical equation with an infinite zone along the horizontal,
- 2) the solution of this same equation in a limited zone, which is the sum of integrals along this zone (cylinder) which limit its surface.

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ACCESSION NR: AR4034738

The solution according to the second scheme requires sequential approximations. In the capacity of the first, a solution without a surface integral is accepted. According to the authors, this approximate formula already gives a solution which is equal in accuracy to the results of the formula of the first scheme, since in calculations according to the first scheme, the function of influence has to be "trimmed." The solution found is used for the second approximation during the calculation of the integral omitted at first, etc. From a practical standpoint, the second and third approximations coincide. This gave the basis for a limitation to two approximations in the calculations. The results of the calculations according to a three-level scheme demonstrated the superiority of the second scheme.

A four-level prognostical scheme was worked out, including the sea level and three levels of the preceding scheme. It is noted, that the quality of the prognosis on the latter did not improve; at the same time, changes in the sea level are determined basically by the physical factors of the layers above it, since the results practically do not depend on whether the subintegral functions (advection of wind and temperature) on the sea level are calculated.

A significant improvement in the prognosis on the lower levels was obtained by means of calculating friction, for which, the vertical speed was taken as

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ACCESSION NR: AR4034738

non-disappearing along the sea level, and proportional to the Laplace operator along the geopotential of this level. The coefficient of the turbulent viscosity was found best selected in the 20-80 sq meters/sec range.

DATE ACQ: 02Apr64

SUB CODE: AS, MM

ENCL: 00

Card 3/3

SHAKHOV, A.I., kand.tekhn.nauk; MUZYCHENKO, A.N., kand.tekhn.nauk;
DUSHKIN, S.S.

Thermal operation of apparatus used in magnetic feed water treatment.
Energ. i elektrotekh. prom. no.3:50-52 J1-S '63. (MIRA 16:10)

1. Khar'kovskiy institut inzhenerov kommunal'nogo stroitel'stva.

SHAKHOV, A.I., kand. tekhn. nauk (Khar'kov); MUZYCHENKO, A.N., kand.
tekhn. nauk (Khar'kov); DUSHKIN, S.S., inzh. (Khar'kov)

Magnetic treatment of water. Vod. i gan. tekhn. no.11:6-8
N '63. (MIRA 17:1)

SHAKHOV, A.I., kand. tekhn. nauk, dotsent; MUZYCHENKO, A.N., kand. tekhn. nauk; DUSHKIN, S.S., inzh.

Design of apparatus for the magnetic feed water treatment.

Izv. vys. ucheb. zav.; energ. 6 no.9:115-118 S '63.

(MIRA 16:12)

1. Khar'kovskiy institut inzhenerov kommunal'nogo stroitel'stva.

SHAKHOV, A.I., kand. tekhn. nauk; DUSHKIN, S.S., inzh.

Improvement of the operation of water clarifying stations
in power systems of industrial enterprises. Energ. i elektrotekh.
prom. no.1:54-56 Ja-Mr '64. (MIRA 17:5)

SHAKHOV, A.I.; BEREZHNOV, I.N.; DUSHKIN, S.S.

Analyzing the operation of units for the magnetic processing
of water. Gaz. prom. 9 no.3:34-37 '64. (MIRA 17:9)

(N) L 11140-66 EWT(1)/EWA(1)/EWA(h)-2
 ACC NR: AP6000781 SOURCE CODE: UR/0240/65/000/009/0106/0107
 AUTHOR: ^{44 55}Shakhov, A. I. (Candidate of Technical Sciences); ^{44 55}Dushkin, S. S.
 ORG: Kharkov Institute of Municipal Construction Engineers (Khar'kov-skiy institut inzhenerov kommunal'nogo stroitel'stva) ^{44,55 60}
 TITLE: ^{44 55}Bactericidal effect of an applied magnetic field ⁶⁰
 SOURCE: Gigiyena i sanitariya, no. 9, 1965, 106-107
 TOPIC TAGS: electromagnetic radiation, electromagnetic biologic effect, water purification, bacteria
 ABSTRACT: Experiments were conducted at the Kharkov Institute of Municipal Construction Engineers to determine the bactericidal effect of a magnetic field applied to contaminated water samples. Tests were staged on artificially contaminated water samples taken from the Kharkov water supply system and water samples from the Northern Donets-Donbas Canal during spring flooding in 1964. A special 12 circuit electromagnetic apparatus with the magnet coils on the outside was constructed to produce a magnetic field intensity of 40 to 720 a/cm of 0.4 to 1.6 sec duration to treat water at flow rates of 0.5 to 2 m/sec. Electric power expended for treatment of 1 m³ water was roughly 0.5 to 3.0 w/hr. Degree of purification was determined by the
 Card 1/2 UDC: 628.163:628.337

L 11140-66

ACC NR: AF6000781

ratio of bacteria in the water sample before and after treatment. Total number of bacteria was determined by GOST 5216-50. A membrane filter method was used for bacteriological tests on the Kharkov water supply samples, and a two phase fermentation test method was used for the Northern Donets-Donbas samples. Findings show that magnetic field treatment of contaminated water produces a bactericidal effect. The degree of purification appears dependent on magnetic field intensity and water flow rate conditions, but further research is required to determine optimum parameters. Orig. art. has: 1 table.

SUB CODE: 06/ SUBM DATE: 15Sep64/ ORIG REF: 000/ OTH REF: 000

60
Card 2/2

IOFFE, E.Sh.; DUSHKINA, L.V.

Separation of cobalt from hydrometallurgic reduction solutions
by extraction with ternary amines. TSvet. met. 38 no.2:36-40
F '65. (MIRA 18:3)

GOR'KOVA, I.M.; DUSHKINA, N.A.; HYABICHEVA, K.N.

Structural and mechanical properties of silts of the Black Sea
and their diagenetic modifications. Trudy Lab.gidrogeol.probl.
22:55-69 '59. (MIRA 13:4)
(Black Sea--Silt) (Soil mechanics)

DUSHKINA, N.A.

Granulometric and microaggregative composition of chalks and
chalklike rocks. Trudy Lab.gidrogeol.probl. 44:44-50 '62.
(MIRA 15:7)

(Chalk)

GOR'KOVA, I.M.; DUSHKINA, N.A.

Structural-mechanical properties and deformation features
of chalk and chalklike rocks. Trudy Lab.gidrogeol.probl.
44:100-114 '62.

(MIRA 15:7)

(Chalk)

GOR'KOVA, I.M., doktor geol.-miner. nauk; OENINA, N.A.;
DUSHKINA, N.A.; RYABICHEVA, K.N.

[Nature of the strength and deformation properties of
loess] Priroda prochnosti i deformatsionnye osobennosti
lessovykh porod. Moskva, Nauka, 1964. 147 p.

(MIRA 17:11)

AVIOSOR, M.L., prof.; DUSHKINA, V.L., dotsent; BEREZHNIYSKIY, M.N.

Diagnosis of rheumatic and theumatoid polyarthrits. Vrach.
delo no.11:127-128 N'63 (MIRA 16:12)

1. Klinika fakul'tetskoy terapii Ivano-Frankovskogo meditsin-
skogo instituta.

1ST AND 2ND EDITIONS										3RD AND 4TH EDITIONS									
PROCESSING AND PROPERTY INDEX																			
DUSHKO, D. N.										11F									
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<p>Absorption of glucose in the stomach under extirpation of individual sections of the vegetative nervous system. U. N. Dushko and R. O. Faltel'berg. <i>Fiziol. Zhur. S.S.S.R.</i> (J. Physiol.) 34, 367-74(1940). Dog expts., in which the Pavlov pouch method as modified by Dushko and Aga (<i>Ibid.</i> 15, 245(1932)) was used, showed that the various sections of the vegetative nervous system have different effects on absorption of glucose in the stomach. Severance at the neck of the left vagus nerve within 2 weeks gives a definite reaction shown by a sharp drop of absorption (at times to zero); the right nerve counterpart gives but a very slight effect. Severance, at the neck, of the left sympathetic nerve also has no significant effect, and the same result is obtained in disconnection of the other regions of the vegetative nervous system. Change to the Heidenhain pouch failed to change the results. (I. M. Kosolapoff</p>																			
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DUSHKO, D. N.
USSR/Medicine - Physiology

FD-929

Card 1/1 Pub 33-12/29

Author : Faytel'berg, R. O. and Dushko, D. N.

Title : Changes in the motor activity of the stomach during artificial
 pneumothorax

Periodical : Fiziol. zhur. 40, 338-343, May/Jun 1954

Abstract : Experiments were conducted on 2 dogs to ascertain whether change in
 periodic hunger contractions of the stomach takes place when brain
 function is altered after excitation of pleura receptors by injecting
 air into the pleural cavity. It was discovered that when air is in-
 jected into pleural cavity during early period of hunger contractions,
 the amplitude and frequency of each contraction and the duration of
 contraction period is increased and the period of relative rest is
 reduced. Rest period can be prolonged by injection of air into
 pleural cavity at the end of hunger contraction period or during the
 period of relative rest. When pressure in the pleural cavity approaches
 zero the shifts in periodic motor activity of the stomach become more
 pronounced. Tables. Diagrams. Five Soviet references.

Institution : Chair of Physiology of Agricultural Animals, Odessa Agricultural
 Institute

Submitted : December 31, 1952

DUSHKOV, B.A.

This helps us to ~~work~~ more effectively. Mashinostroitel'
no.1:40-41 Ja '62. (MIRA 15:1)
(Industrial hygiene)

ACC NR: AT6036555

SOURCE CODE: UR/0000/66/000/000/0158/0159

AUTHOR: Dushkov, B. A.

ORG: none

TITLE: Study of the accuracy and stability of time-effort reactions in various postures in man [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 158-159

TOPIC TAGS: space physiology, orthostatic test, biologic rhythm, diurnal rhythm, space medicine, cosmonaut training

ABSTRACT: One of the conditions of increasing cosmonaut work capacity and maintaining cosmonaut health during long flights is the use of physiologically appropriate working posture.

Prolonged maintenance of a single posture causes changes in sympathetic nervous functions and the neuromuscular apparatus, and also affects the nature and stability of time-effort reactions. In order to study the precision and stability of time-effort reactions in various postures, functional tests were used; test indices were muscular strength,

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ACC NR: AT6036555

endurance, muscle-joint sensitivity, and tests of mental and physical work capacity.

The data obtained on changes in the precision and stability of time-effort reactions in various positions show that adaptation to a required posture is gradual and proceeds at a rate related to the complexity of the physical circumstances. The more complicated the working posture, the less efficient the mental and physical work capacity. At the same time, precision and stability of time-effort reactions deteriorate. In a more comfortable working posture, adaptation to the indices characterizing time-effort correlations is more rapid, and mental and physical work capacity improves.

It may be assumed that prolonged maintenance of an uncomfortable posture impairs the mechanism governing the correlation of reaction effort with the time sense; this impairment is evidently related to cyclic excitation and inhibition in the complex structures of neural elements of the central nervous system.

On the basis of the material accumulated, it is possible to analyze the general characteristics of postural receptors in order to devise

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ACC NR: AT6036555

rational working postures suitable for the conditions of spaceflight.

The development of such physiologically determined postures must be based on the principles of a more painstaking analysis of the characteristic moments of cosmonaut activity, and on objective data obtained from study of physiological and psychological parameters of work capacity dynamics and cyclic variations in the precision and stability of time-effort reactions occurring during work.

This means that it is necessary to anticipate and take into account such factors as cosmonaut work rhythms, the coordination structure of movements, movement tempo, physical loading, postural stimuli, adverse factors (weightlessness, radiation), and other features of prolonged spaceflight. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06, 05 / SUBM DATE: 00May66

Card 3/3

DUSHKOV, I.I.; MOLCHANOV, V.A.; TEL'KOVSKIY, V.G.; CHICHEROV, V.M.

Some angular relationships in cathode sputtering. Zhur.tekh.fiz.
31 no.8:1012 Ag '61. (MIRA 14:8)
(Sputtering (Physics))

... about 7 MeV, but there was a considerable excess of

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